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D E C I S I O N
of 10 January 2006

Case Number: T 0090/05 - 3.2.05

Application Number: 98118650.5

Publication Number: 0906881

IPC: B65H 3/52

Language of the proceedings: EN

Title of invention:

Singulating apparatus for a mail handling system

Patentee:

Pitney Bowes Inc.

Opponent:

Francotyp-Postalia Aktiengesellschaft & Co. KG

Headword:

-

Relevant legal provisions:

EPC Art. 56

Keyword:

"Inventive step, main request (yes)"

Decisions cited:

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Catchword:

-



Case Number: T 0090/05 - 3.2.05

D E C I S I O N
of the Technical Board of Appeal 3.2.05
of 10 January 2006

Appellant: Francotyp-Postalia AG & Co. KG
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Representative: Marsh, Roy David
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 28 December 2004
rejecting the opposition filed against European
patent No. 0906881 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: W. Moser
Members: W. Zellhuber
W. Widmeier

Summary of Facts and Submissions

- I. The appellant (opponent) lodged an appeal against the decision of the Opposition Division rejecting the opposition filed against the European patent No. 0 906 881.
- II. The Opposition Division held that the grounds for opposition submitted by the appellant under Article 100(a) EPC (lack of novelty, Article 54 EPC, and lack of inventive step, Article 56 EPC) did not prejudice the maintenance of the patent in suit as granted.
- III. Oral proceedings were held before the Board of Appeal on 10 January 2006.
- IV. The appellant requested that the decision under appeal be set aside and that the European patent No. 0 906 881 be revoked in its entirety.

The respondent (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained on the basis of the following documents filed on 19 July 2005:

- (a) claims 1 to 10 as main request; or
- (b) claims 1 to 9 as first auxiliary request; or
- (c) claims 1 to 9 as second auxiliary request.

V. Claims 1 and 10 according to the main request read as follows:

"1. A singulator for use in apparatus having means (37) for moving articles of mixed sizes from a stack of articles of mixed sizes along a feed path, the singulator (45) comprising:

 a feed deck (109);

 forwardly driving means (107), connected to the feed deck (109), for contacting successive articles (3) along a first surface thereof and for advancing the articles in a first direction along the feed path and over the feed deck (109); and

 a reverse driving mechanism (105), connected to the feed deck (109), for contacting the articles along a second surface thereof and for applying driving force to the articles in a second direction opposite to the first direction whereby only one (3a) of the articles at a time is moved by the forwardly driving means (107) in the first direction along the feed path and over the feed deck (109), the forwardly driving means (107) and the reverse driving mechanism (105) being connected to the feed deck (109) relative to each other to define a nip (46) for ingestion of articles therebetween;

 characterized by:

 means (101) located just upstream from the nip (46) for sensing if at least one of the articles is present in the nip (46); and

 control means (61), operatively connected to the sensing means (101), for operating the moving means (37) to move articles from the stack toward the nip (46) at times when the sensing means (101) does not sense the presence of the at least one of the articles in the nip and for preventing the moving means (37) from moving

articles from the stack toward the nip (46) at times when the sensing means (101) senses the presence of the at least one of the articles in the nip (46)."

"10. A method for separating articles of mixed sizes from a stack of articles of mixed sizes being moved along a feed path, the method comprising the steps of:

utilizing a feed mechanism (37) to feed articles of mixed sizes along the feed path;

causing a forward drive mechanism (107) to contact successive articles along a first surface thereof for moving the articles in a first direction along the feed path; and

engaging a reverse driving mechanism (105) with the articles along a second surface thereof for applying driving force to the articles in a second direction opposite to the first direction whereby only one of the articles at a time is moved by the forwardly drive means (107) in the first direction along the feed path, the forward drive mechanism (107) and the reverse driving mechanism (105) being positioned relative to each other to define a nip (46) for ingesting articles therebetween;

characterized by:

sensing by means (101) located just upstream from the nip (46) if at least one of the articles is present in the nip (46);

operating the feeding mechanism (37) for feeding articles from the stack toward the nip (46) at times when the presence of the at least one of the articles in the nip is not sensed; and

preventing the feeding mechanism (37) from feeding articles from the stack toward the nip at times when

the sensing means senses the presence of the at least one of the articles in the nip (46)."

VI. The following documents are referred to in the present decision:

D1: US-A 4,909,499;

D6: US-A 4,030,722;

D7: US-A 3,988,017.

VII. During oral proceedings, the appellant argued essentially as follows with respect to the subject-matter of the main request:

It had to be taken into consideration that a sensing means which was located just upstream of the nip, as claimed in claim 1 of the main request, was not suitable to detect mailpieces which were buckled or bent upwards by the reverse driving means. That occurred before the mailpieces approached the nip.

Document D1, which represented an appropriate starting point for assessing inventive step, disclosed a singulator for mixed mail according to the preamble of claim 1 of the main request, cf. Figure 2. In that known device, a guide plate 73 prevented mailpieces from being pushed against the reverse driving means 38. Nevertheless, a jam might occur if a plurality of thin mailpieces passed below the guide plate.

In order to control the proper functioning of such an apparatus, it was known to provide sensor means, cf. documents D6 and D7.

Document D6 suggested providing sensing means downstream of the nip, which did not allow the detection of a jam of mailpieces upstream of the nip.

However, document D7 showed a solution to the problem of preventing mailpieces from being buckled and bent upwards before entering the nip. It suggested locating sensing means upstream of the nip and to halt the process of feeding mailpieces from the stack towards the singulator, whenever a mailpiece obscured the sensor. The sensor thus had the same functioning as that of the patent in suit. Mailpieces were not pushed against the reverse driving means, and buckling of the mailpieces was thus avoided, independently of the fact whether the mailpieces were thin or thick.

Using reverse driving means as claimed in claim 1 of the main request was an obvious alternative to the statutory retaining means suggested in document D7.

Therefore, the subject-matter of claim 1 of the main request did not involve an inventive step. The same applied to claim 10 of the main request, which reproduced the subject-matter in form of a method claim.

VIII. In the written procedure and during oral proceedings, the respondent argued essentially as follows:

The object of the patent in suit was to improve the apparatus disclosed in document D1, wherein a problem

was that mailpieces had to be processed at high speeds and that, in particular, thin and delicate pieces might buckle in the nip instead of being separated and fed toward the take away rollers, cf. paragraph [0005] and column 12, lines 23 to 28 of the patent in suit.

According to claim 1 of the main request, sensing means were located just upstream from the nip so that, if a mailpiece became buckled or folded in the region approaching the nip, but did not actually pass through the nip, it was detected and allowed the system to prevent feeding of further mailpiece.

The prior art did not suggest a solution to that particular problem.

Document D6 clearly taught providing sensing means downstream of the nip.

Document D7 concerned a different kind of system and did not address the problem. It disclosed an apparatus comprising two subsequent feeders (first stage feeder 22 and second stage feeder 23), and sensing means 112 for detecting so-called "doubles", cf. Figures 1 and 2. The sensing means 112 did not allow the detection of small mailpieces in the nip of the second stage feeder, especially if buckled. Sensor 112 was thus not appropriately positioned for solving the problem underlying the patent in suit.

Moreover, the system of document D7 was antiquated, and, in order to improve the system of document D1 and to solve the problem concerning thin mailpieces, there was no incentive to consider the system of the elder

document D7. Actually, it was the first stage feeder which corresponded to the singulator claimed in claim 1 of the main request. However, document D7 suggested neither providing sensing means upstream of the nip of the first stage feeder nor any means for stopping buckling in the first stage feeder.

The cited prior art thus did not suggest the solution claimed in claims 1 and 10 of the main request.

Reasons for the Decision

1. *Amendments*

The subject-matter of claims 1 and 10 according to the main request is disclosed in the printed version of the application as filed in claims 1 and 10, respectively, in connection with the passage in column 11, lines 50 to 55 of the description, and Figures 2 and 5.

Dependent claims 2 to 9 substantially correspond to claims 2 to 9 of the application as filed.

The description was amended to bring it in line with the subject-matter of claims 1 and 10 according to the main request. References to documents D6 and D7 were added. The drawings correspond to the drawings of the application as filed.

Furthermore, the scope of protection conferred by independent claims 1 and 10 is more limited than that of the corresponding independent claims 1 and 10 of the patent in suit as granted.

Consequently, in the Board's judgement, the amendments meet the requirements of Article 123(2) and (3) EPC.

2. *Novelty*

None of the cited documents discloses a singulator and a method according to claims 1 and 10, respectively, of the main request.

In fact, novelty of the subject-matter of independent claims 1 and 10 of the main request was not in dispute.

3. *Inventive step*

- 3.1 Document D1, which is considered to represent the closest prior art, discloses a singulator and a method according to the preambles of claims 1 and 10, respectively, of the main request, see also paragraph [0003] of the patent in suit.

Document D1 is silent about any sensing means provided for detecting the presence of mailpieces at particular locations, and no measures are taken in order to control the process of feeding mailpieces from the stack toward the singulator or to manage particular problems arising from processing thin mailpieces. In order to avoid that a thick mailpiece impacts belt 38 of the reverse driving mechanism, a guide plate 73 is provided (cf. Figure 2), which "... serves to help lift the singulator when thick mail pieces are present", cf. column 6, lines 63 to 65 of document D1.

3.2 The object of the patent in suit is to improve the known apparatus and to provide a more effective singulating apparatus for use in a system which transports mixed sizes of articles, cf. paragraph [0006] of the patent in suit, wherein a particular problem consists in that thin and weak articles had to be processed in a reliable and high throughput manner, cf. paragraph [0005] of the patent in suit.

The solution suggested in claims 1 and 10 of the main request consists essentially in that sensing means are located just upstream from the nip and that control means prevent the moving means from moving articles from the stack toward the nip at times when the sensing means senses the presence of an article in the nip.

Accordingly, the sensing means located just upstream from the nip allows the detection of thin mailpieces buckled in the nip instead of being separated and fed through the nip toward following take away rollers, cf. column 12, lines 23 to 36 of the patent in suit. In that case, no further mailpieces are pushed towards the singulating device.

3.3 The cited prior art neither addresses that particular problem nor suggests the solution indicated in the claims according to the main request.

Document D6 teaches locating the sensing means just downstream from the nip, contrary to the claimed solution.

The object of the apparatus disclosed in document D7, is to provide means for separating workpiece doubles

before another workpiece is pulled from the stack, and the sensing means are appropriately located, cf. column 1, lines 44 to 50, and 63 to 68, and column 6, line 60, to column 7, line 2, of document D7.

Document D7 suggests an apparatus comprising a first and a second stage feeder 22 and 23, each comprising forwardly driving means 50, 58 and stationary retaining means 63, 72, cf. Figure 2. Sensing means, i.e. photocells 111, 112, and 113, are located downstream of the first stage feeder (photocell 111), upstream of the second stage feeder (photocell 112) and downstream of the second stage feeder (photocell 113) for sensing the presence of an article at the respective locations and for monitoring the flow of articles. If photocell 112 indicates that the second stage feeder is not empty, the first stage feeder stops when the leading edge of the mailpiece blocks photocell 111, cf. column 6, lines 19 to 23, and 29 to 50.

Document D7 does not refer to the problem that thin and weak mailpieces may buckle in the nip of the first or the second stage feeders. The known apparatus also is not suitable for detecting such a malfunctioning. In the first stage feeder, sensing means is provided downstream of the nip. In the second stage feeder, sensing means is located upstream of the nip, however, at a distance therefrom. There is no incentive in document D7 for considering locating the sensing means as close as possible to the nip thus allowing the detection of thin mailpieces buckled in the nip instead of being pushed through.

- 3.4 Admittedly, a sensor which is located just upstream of the nip does not allow the detection of a mailpiece which is bent upwards by reverse driving means and which does not approach the nip.

However, mailpieces which are caught in the nip and buckled are detectable by sensing means located at that position. Moreover, as already pointed out in the patent in suit, in column 2, lines 36 to 40, the force of the reverse driving mechanism cannot be greater than the force of the forwardly driving means. Consequently, in the Board's judgement, thin and weak mailpieces which, for one reason or another, are bent upwards before approaching the nip and the sensing means, will nevertheless be pushed towards the nip by the forwardly driving means, and, finally, will be detected by sensing means located just upstream of the nip. The functioning of the apparatus as claimed in claim 1 of the main request thus deviates from that of document D7.

- 3.5 The teaching of the prior art as discussed above thus does not lead the person skilled in the art to modify the apparatus disclosed in document D1 so that sensing means is located just upstream of the nip, viz. as close as possible to, and upstream of, the nip defined by forwardly driving means and reverse driving means. Therefore, the subject-matter of claims 1 and 10 according to the main request involves an inventive step within the meaning of Article 56 EPC.

The subject-matter of claims 2 to 9, which are appendant to claim 1, similarly do involve an inventive step.

4. Since the main request is held allowable, it is not necessary to deal with the auxiliary requests of the respondent.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent on the basis of the following documents:
 - (a) claims 1 to 10 filed as main request on 19 July 2005; and
 - (b) description, pages 2, 3, 6 and 8 presented during oral proceedings, and pages 4, 5, 7 and 9 as granted; and
 - (c) drawings, Figures 1 to 9 as granted.

The Registrar:

The Chairman:

M. Dainese

W. Moser